

CLAIMS

What is claimed is:

1. An assembly comprising:
an etched hole-fill standoff;
a tooling plate contacting the etched hole-fill stand-off, the stand-off and tooling plate being aligned to each other;
a device having holes to be filled removably contacting the stand-off, the stand-off and device being aligned to each other; and
the device and the stand-off each having at least one hole, the hole of the device being aligned with the hole of the stand-off .
2. The assembly of claim 1 wherein hole of the stand-off is larger in diameter than the hole of the device.
3. The assembly of claim 1 wherein the device comprises a plurality of holes to be filled and the stand-off comprises a plurality of holes wherein each hole to be filled of the device is aligned with a hole of the stand-off.
4. The assembly of claim 1 wherein the stand-off comprises an external copper layer and the device comprises an external copper layer, the layer of the stand-off being in direct contact with the layer of the device.
5. The assembly of claim 4, wherein the at least one hole of the standoff extends only through the external copper layer of the stand-off.
6. The assembly of claim 1 wherein a first set of pins aligns the stand-off to the tooling plate and a second set of pins aligns the device to the stand-off.
7. The assembly of claim 6 wherein the stand-off rests on but is not bonded to tooling-plate other than by the pins aligning the stand-off and the tooling plate, and the

device rests on but is not bonded to the stand-off other than by the pins aligning the stand-off and the device.

8. The assembly of claim 1 wherein at least one hole of the device is filled with a fill material that extends partially into a hole of the stand-off without contacting the stand-off.
9. An assembly comprising an etched hole-fill standoff, the stand-off comprising an etched layer bonded to a non-etched layer.
10. The assembly of claim 9 wherein the etched hole-fill stand-off comprises a copper clad laminate having a dielectric layer laminated between a first and a second copper layer wherein the at least one hole of the stand-off that is aligned with the at least one hole of the device to be filled is etched through the first copper layer, but not through either the dielectric layer or second copper layer.
11. The assembly of claim 9 further comprising:
 - a tooling plate contacting the non-etched layer of the etched hole-fill stand-off, the stand-off and tooling plate being aligned to each other;
 - a device having holes to be filled removably contacting the etched layer of the stand-off, the stand-off and device being aligned to each other; and
 - the device and the stand-off each having at least one hole, the hole of the device being aligned with the hole of the stand-off, the hole of the stand-off having a larger diameter than the hole of the device.